

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 10009601WO01	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/JP2005/003435	International filing date ( <i>day/month/year</i> ) 23 February 2005 (23.02.2005)	Priority date ( <i>day/month/year</i> ) 27 February 2004 (27.02.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant CANON KABUSHIKI KAISHA		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 4 sheets, including this cover sheet.  
  
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report   |
| <input type="checkbox"/> Box No. II           | Priority  |
| <input type="checkbox"/> Box No. III          | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/> Box No. IV           | Lack of unity of invention  |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI           | Certain documents cited   |
| <input type="checkbox"/> Box No. VII          | Certain defects in the international application  |
| <input type="checkbox"/> Box No. VIII         | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

	Date of issuance of this report 30 August 2006 (30.08.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	Authorized officer  Yoshiko Kuwahara  e-mail: pt07@wipo.int

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 12 MAY 2005

WIPO

PCT

To:  
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## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

10.5.2005

Applicant's or agent's file reference  
10009601WO01

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

PCT/JP2005/003435

International filing date (day/month/year)

23.02.2005

Priority date (day/month/year)

27.02.2004

International Patent Classification (IPC) or both national classification and IPC

Int.Cl.<sup>7</sup> H01L41/09, 41/187, 41/24, B41J2/045, 2/055, 2/16, C01G25/00, C30B29/32, H02N2/00

Applicant

CANON KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion

08.04.2005

Name and mailing address of the ISA/JP

**Japan Patent Office**

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/003435

Box No. I      Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-9, 15-17	YES
	Claims	10-14	NO
Inventive step (IS)	Claims	1-9, 15-17	YES
	Claims	10-14	NO
Industrial applicability (IA)	Claims	1-17	YES
	Claims		NO

2. Citations and explanations

D1:JP 2003-81694 A (NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE  
ANE TECHNOLOGY) 2003.03.19, [0040]-[0069] (Family:none)  
D2:JP 5-7029 A (HONDA GIKEN KOGYO KABUSHIKI KAISHA) 1993.01.14,  
[0033], FIG.5 (Family:none)  
D3:JP 2001-203401 A ( SEIKO EPSON CORPORATION )  
2001.07.27, [0013]-[0032], FIGS.1-7 (Family:none)  
D4:JP 10-290035 A ( SEIKO EPSON CORPORATION )  
1998.10.27, [0016]-[0048], FIGS.1-3 (Family:none)

Claims 1-6, 15-17

The subject matters of claims 1-6, 15-17 are considered to involve an inventive step over the documents cited in the international search report. D1, D2, D3 and D4 do not disclose a piezoelectric thin film of perovskite crystals having the equivalent circle diameter of 40 nm or less is 5% or more with respect to the total number of the crystal grains observed in the surface of the piezoelectric thin film. And the subject matters claimed appear to be non-obvious.

Claims 7-9

The subject matters of claims 7-9 are considered to involve an inventive step over the documents cited in the international search report. D1, D2, D3 and D4 do not disclose a method for manufacturing a semiconductor device, comprising the steps of: titanium concentration of a raw material solution for use in forming the piezoelectric layer of the first layer is set to be higher than of a raw material solution for use in forming a last piezoelectric layer. And the subject matters claimed appear to be non-obvious.

Claims 10-14

The subject matters of claims 10-14 do not appear to be novel with respect to D1.